

February 13, 2007

### **Westside Station Maintenance**

Accompanied Kyle Kearney (Tetra Tech) to Westside stations and performed flow measurements. DO-38 Marshall Drain, DO-64 Moran Drain, DO-65 Spanish Grant Drain, DO-34 Ingram Creek, DO-33 Hospital Creek, and DO-31 New Jerusalem Drain were visited for data downloads, cleaning, flow, EC, and temperature QA.



### **DO-65 Spanish Grant Drain**

Jeremy Hanlon measuring stage using the blue pole.



### **DO-34 Ingram Creek Flow Station**

Weir structure at Ingram Creek.



### **DO-33 Hospital Creek Flow Station**

Flow station adjacent to road at Hospital Creek.



### **DO-33 Hospital Creek Flow Station**

Team preparing to leave station. Vehicles were parked next to the road to minimize tracks left in the mud.

February 15, 2007

### **Wetland Sampling Event**

Sampling for wetland sites. DO-61 Deadman's Slough was clogged with debris. Flow rating was taken at the outlet pipes.



#### **DO-60 Moffit 1 South**

Weir structure at Moffit 1 South. Structure has to occasionally be cleared of beaver debris for accurate flow measurements.



#### **DO-61 Deadman's Slough**

Weir boards blocked by debris from beaver activity. Water flowing over and around weir structure from damming action.



#### **DO-45 Volta Wasteway at Ingomar**

Chelsea Spier collecting samples at Volta Wasteway.



#### **DO-53 Salt Slough at Wolfsen Road**

Chelsea Spier collecting water samples from bridge over Salt Slough.

March 01, 2007

### **Core Sampling Event**

Sampling for core sites.



#### **DO-18 Mud Slough near Gustine**

Student Intern collecting water samples.



#### **DO-19 Salt Slough at Lander**

Student Intern preparing to sample. An extra vehicle was rented on core sampling events to accommodate two sampling crews.



#### **DO-10 SJR at Lander**

Student Intern wearing yellow safety vest for visibility while sampling next to bridge.



March 06, 2007

### Westside Station Maintenance

Accompanied Kyle Kearney (Tetra Tech) to Westside stations. DO-38 Marshall Drain, DO-64 Moran Drain, DO-65 Spanish Grant Drain, DO-57 Ramona Lake, DO-36 Del Puerto Creek, DO-35 Westley Wasteway, DO-34 Ingram Creek, DO-33 Hospital Creek, and DO-31 New Jerusalem Drain were visited for data downloads, cleaning, flow, EC, and temperature QA.



#### DO-38 Marshall Drain

Justin Graham suited up to go down manhole and collect flow measurements.



#### DO-31 New Jerusalem Drain

View of inside of station. Laptop is used to download data from the Mace flowmeter.



#### DO-57 Ramona Lake

Picture of newly installed weir box at lake opening. Weir box will divert flow into the main lake.



#### DO-33 Hospital Creek Flow Station

Water flowing over weir structure at Hospital Creek.

March 08, 2007

### **Wetland Sampling Event**

Sampling for wetland sites. DO-61 Deadman's Slough was clogged with debris. Weirboards were pulled at DO-81 Marsh 1 Outlet and the temporary wetland was draining. DO-121 Marsh 1 East was sampled 30 ft west of normal sample location due to draining wetland. DO-120 Marsh 1 Intermediary had no water and was not sampled.



#### **Sample bottles**

Bottles are labeled in the field with the site number, date, and name for identification in the laboratory.



#### **DO-61 Deadman's Slough**

Student Intern collecting sample. Weirboards blocked by debris from beaver activity.



#### **DO-81 Marsh 1 Outlet**

Picture of the outlet structure for the temporary wetland. Weirboards were pulled from the structure before the crew arrived.



#### **DO-120 Marsh 1 Intermediary**

Water was drained from wetland leaving this site dry. No sample was collected.

March 12, 2007

**Grasslands Station Maintenance and QA**

Met with Lara Sparks (Grasslands Water District/Department of Fish and Game) to assist her with stream ratings and station maintenance at the DO sites she manages within the Grasslands water district.



**DO-20 Los Banos Creek Flow Station**

Justin Graham carefully opening shed to Los Banos Creek. One of the hazards of field work are the many wasps and spiders that make their home in the flow sheds.



**DO-68 S-Lake Basin**

Lara Sparks (GWD/DFG) cleaning EC probe at S-Lake Basin.



**DO-129 Hollow Tree**

Justin Graham recording stage for Hollow tree. Water is flowing out of the flume into S-Lake Basin.



March 16, 2007

### **Boat Work**

The boat was taken out onto the San Joaquin River to do a trial run of Jeremy Hanlon's real-time data collection program.



### **Boat Launch**

Student Intern waiting for boat to be launched into the water.



### **Boat getting underway**

Remie Burks piloting boat down the San Joaquin River.



### **En route to sample location**

Justin Graham and Student Intern wearing life vests en route to the sample location.



### **Testing Equipment**

Jeremy Hanlon and Justin Graham test real-time data collecting using a program that Jeremy Hanlon put together.

March 20, 2007

### **DO-57 Ramona Lake Station Upgrade**

Installed a HOBO pressure logger at the weir at lake entrance to record stage. Installed a box and pipe inside of manhole for EC probe and Bubbler line after they were ripped out during last year's floods. Box was mounted to side of manhole but increasing rain prevented finishing re-installation of bubbler line and EC probe.



#### **Probe Housing Box**

Jeremy Hanlon making a box to mount the probes at DO-57 Ramona Lake



#### **Weir at Lake Entrance**

Jeremy and a Student Intern installing a stilling well and HOBO pressure logger at the lake inlet to record stage.



#### **Probe Housing Box Mounting**

Jeremy Hanlon using a hammer drill to mount the box to the side of the manhole.



#### **Finishing Work on Sensor Mount**

Jeremy Hanlon reviewing almost complete sensor mount at DO-57 Ramona Lake. Work was cut short due to increasing rain.



March 22, 2007

### **Wetland Sampling Event**

Sampling for wetland sites. DO-54 Los Banos Creek at Ingomar Grade was dry and no sample was collected. DO-61 Deadman's Slough was clogged with debris.



### **DO-19 Salt Slough at Lander**

Student Intern preparing to collect sample at Salt Slough.



### **DO-46 Mud Slough at Gun Club Road**

Chelsea Spier retrieving sonde from bridge.



### **Sheep in wetlands**

Occasionally sheep are seen grazing the wetlands.



### **Truck unloading the sheep**

The sheep are trucked in and let out into temporary pens with electrified fencing.

March 29, 2007

**DO-57 Ramona Lake Station Upgrade**

Finished installing the EC probe and Bubbler line after they were ripped out during last year's floods.



**DO-57 Ramona Lake**

Picture of Ramona Lake from top of levee.



**DO-57 Ramona Lake Manhole**

Jeremy Hanlon installing a pipe to protect the EC probe and cable from debris.



**Probe Housing Box Mounting**

Jeremy Hanlon finished installing bubbler and EC line in manhole.



**DO-57 Ramona Lake**

Water flowing into outlet at Ramona Lake.

April 05, 2007

### **Wetland Sampling Event and BMP Ramona Lake Survey**

Sampling for wetland sites. There was no water at DO-54 Los Banos Creek at Ingomar Grade. DO-61 Deadman's Slough was clogged with debris. Jeremy Hanlon and Will Stringfellow collected data on Ramona Lake from a small boat. Flow, temperature, depth, EC, DO, pH, turbidity, and chlorophyll data were collected from various points on the lake.



**DO-54 Los Banos Creek at Ingomar Grade**  
Picture of dry riverbed at Los Banos Creek at Ingomar Grade. No sample was collected.



**DO-53 Salt Slough at Wolfsen**  
Student Intern gathering gear from the rental sampling vehicle in preparation for sampling.



**DO-57 Ramona Lake**  
Will Stringfellow packing up the gear after collecting data on the Lake.



**DO-57 Ramona Lake**  
Will Stringfellow rowing the boat around Ramona Lake while Jeremy Hanlon collects data.



April 12, 2007

**Core Sampling Event**

Sampling for core sites. Could not access the gate for DO-30 TID Lat 6 and 7. No sample was collected for this site.



**DO-19 Salt Slough at Lander**

Photo of swallow nests under the bridge.



**DO-29 TID Harding Drain**

Picture depicting rendering plant next to sample site.



**DO-29 TID Harding Drain**

Justin Graham completing check sheet after collecting the sample at Harding Drain.

April 13, 2007

### Westside Station Maintenance

Accompanied Kyle Kearney (Tetra Tech) to Westside stations. DO-38 Marshall Drain, DO-64 Moran Drain, DO-65 Spanish Grant Drain, DO-57 Ramona Lake, DO-36 Del Puerto Creek, DO-35 Westley Wasteway, DO-34 Ingram Creek, DO-33 Hospital Creek, and DO-31 New Jerusalem Drain were visited for data downloads, cleaning, flow, EC, and temperature QA.



#### DO-38 Marshall Drain

Flow shed at the three drain site.



#### DO-31 New Jerusalem Drain

Picture of inside of flow shed at New Jerusalem Drain.



#### DO-57 Ramona Lake

Jeremy Hanlon downloading data from the flow shed at Ramona Lake.



#### DO-35 Westley Wasteway

Jeremy Hanlon and Kyle Kearney (Tetra Tech) are preparing to collect QA data from Westley Wasteway.

April 17, 2007

**Extended Deployment Sampling Event**

Sampling for extended deployment. Deployed sondes for extended deployment at Marshall Road Reservoir. The sondes were deployed at DO-130 Marshall Rd Reservoir Entrance, DO-132 Marshall Rd Reservoir Pond 1 West, DO-133 Marshall Rd Reservoir Pond 2 East, and DO-131 Marshall Rd Reservoir Exit.



**DO-130 Marshall Rd Res Entrance**  
Jeremy Hanlon mounting the sonde to the side of the concrete structure.



**DO-132 Marshall Rd Res Pond 1 West**  
Jeremy Hanlon and Student Intern mount the sonde to the side of the weir box.



**DO-131 Marshall Rd Res Exit**  
Sonde was deployed off the side of the exit structure. The sonde was in a plastic housing attached to the structure with a cable and padlock.



April 19, 2007

**Wetland Sampling Event**

Sampling for wetland sites. There was no water at DO-54 Los Banos Creek at Ingomar Grade. DO-61 Deadman's Slough was clogged with debris.



**DO-54 Los Banos Creek at Ingomar Grade**

Picture of dry riverbed at Los Banos Creek at Ingomar Grade. No sample was collected.



**Sheep near DO-60 Moffit 1 South**

Sheep running from the van near Moffit 1 South.



**Coyote in wetland**

Picture of wildlife frequently seen while sampling in the wetlands.



**DO-53 Salt Slough at Wolfsen**

Samples are taken off of the bridge crossing Salt Slough.

April 26, 2007

**Core Sampling Event**

Sampling for core sites.



**DO-12 Stanislaus River at Caswell**

Photo of riparian vegetation around the sample location on the Stanislaus River.



**DO-28 Westport Drain**

Chelsea Spier collecting a sample.



**DO-14 Tuolumne River at Shiloh**

Sample location at Tuolumne River.



**DO-04 SJR at Mossdale**

Picture showing boat ramp at Mossdale.

May 01, 2007

### **Extended Deployment Sampling Event**

Sampling for extended deployment. Deployed sondes for extended deployment at Marshall Road Reservoir. The sondes were deployed at DO-130 Marshall Rd Reservoir Entrance, DO-132 Marshall Rd Reservoir Pond 1 West, DO-133 Marshall Rd Reservoir Pond 2 East, and DO-131 Marshall Rd Reservoir Exit.



#### **DO-130 Marshall Rd Res Entrance**

Sonde was deployed into a housing bolted to the side of the structure.



#### **DO-130 Marshall Rd Res Entrance**

Chelsea Spier and Student Intern preparing to take a sample.



#### **DO-57 Ramona Lake**

Samples were also collected at Ramona Lake. Picture shows the outlet structure for Ramona Lake.



May 03, 2007

**Intermittent Sampling Event**

Sampling for Intermittent sites.



**DO-51 Arroyo Canal at Hwy 152**  
Student Intern collecting a sample.



**DO-52 Salt Slough at Sand Dam**  
Site was not well mixed. Flow station downstream made new sample location for next sampling trip.



**Inorganic Carbon Vials**  
Justin Graham fills IC vials for analysis at the Lab.



**DO-31 New Jerusalem Drain**  
Justin Graham and Student Intern collecting a sample from the manhole.

May 10, 2007

### **Core Sampling Event**

Sampling for core sites.



**University of the Pacific campus**  
Back of EERP sampling van on the way to the first sampling site.



**DO-44 SLD Drain**  
Student Intern unlocking the gate that leads out of the refuge by San Luis Drain.



**DO-29 TID Harding Drain**  
Sample bottles set up for bucket sampling.



**DO-95 Ramona Lake Inlet**  
Justin Graham taking a point velocity measurement.

May 15, 2007

### **Extended Deployment Sampling Event**

Sampling for extended deployment. Deployed sondes for extended deployment at Marshall Road Reservoir. The sondes were deployed at DO-130 Marshall Rd Reservoir Entrance, DO-132 Marshall Rd Reservoir Pond 1 West, DO-133 Marshall Rd Reservoir Pond 2 East, and DO-131 Marshall Rd Reservoir Exit.



**DO-130 Marshall Rd Res Entrance**  
Sonde had a lot of debris in housing. The housing was lowered to prevent debris accumulation.



**DO-131 Marshall Rd Res Exit**  
Chelsea Spier in EERP sampling van.



**DO-130 Marshall Rd Res Entrance**

Sondes are deployed in a PVC pipe housing to protect them from debris in the water.



May 17, 2007

**Intermittent Sampling Event**

Sampling for Intermittent sites. Access to DO-26 TID Highline Spill sample location was blocked with a gate. Took a sample at the corner of Griffith and Williams downstream of sample location.



**DO-52 Salt Slough at Sand Dam**

Picture of new sample location near flow station.

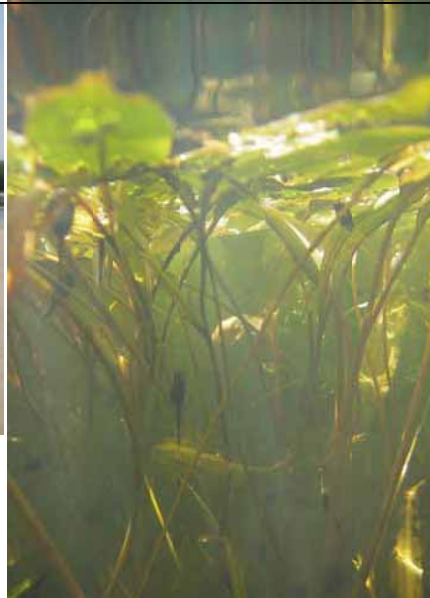


**DO-26 TID Highline Spill**

Gate blocking access to sample location. Sample taken next to gate on other side of canal.



**DO-24 MID Lat 6 to Stanislaus River**  
Student Intern collecting a water sample.



**DO-24 MID Lat 6 to Stan. River**  
Underwater photo showing tadpoles and vegetation.

May 22, 2007

### **Westside Station Maintenance**

Performed maintenance on Westside stations. DO-38 Marshall Drain, DO-64 Moran Drain, DO-65 Spanish Grant Drain, DO-57 Ramona Lake, and DO-31 New Jerusalem Drain were visited for data downloads, cleaning, flow, EC, and temperature QA. Met with Mat Rogers at Ramona lake and Marshall Reservoir to collect samples for his microcosm experiment.



**DO-31 New Jerusalem Drain**  
Jeremy Hanlon cleaning the EC probe.



**DO-57 Ramona Lake**  
Justin Graham, Jeremy Hanlon, and Mat Rogers after collecting sediment samples in Ramona Lake.



**DO-131 Marshall Road Res Exit**  
Mat Rogers holding a bullfrog.



**DO-131 Marshall Road Res Exit**  
Mat Rogers and Justin Graham collecting a water sample.

May 24, 2007

**Core Sampling Event**

Sampling for core sites.

**DO-25 Miller Lake**

Bridge over the outlet of Miller Lake. Samples are collected from the bridge.



**DO-25 Miller Lake**

Sonde deployed in Miller Lake.



May 29, 2007

**Extended Deployment Sampling Event and Westside Station Maintenance.**

Sampling for extended deployment. Picked up extended deploy sondes. Performed maintenance on Westside stations. Stations were visited for data downloads, cleaning, flow, EC, and temperature QA.



**DO-57 Ramona Lake**

Jeremy Hanlon preparing to go down man-hole.



**DO-132 Marshall Road Res Pond 1 West**

Jeremy Hanlon and Justin Graham picking up a deployed sonde.



**DO-36 Del Puerto Creek**

Justin Graham performing a flow rating on Del Puerto Creek.



**DO-35 Westley Wasteway**

YSI EC probe before being cleaned.

May 31, 2007

**Intermittent Sampling Event**

Sampling for Intermittent sites. DO-01 SJR at Channel Point, DO-02 SJR at Lathrop, and DO-03 SJR at Old River were collected from the boat.



**DO-11 French Camp Slough**  
Sample site for French Camp Slough



**San Joaquin River**  
Will Stringfellow piloting the boat to the next sample location.



**DO-39 Salado Creek**  
Sample collected from opening in pipe that runs underground.



**DO-35 Westley Wasteway**  
Debris in channel upstream of sample location.

June 05, 2007

**Extended Deployment Sampling Event and Wetland Station Maintenance.**

Sampling for extended deployment. Picked up extended deploy sondes at Ramona Lake. Performed maintenance on Wetland stations. Stations were visited for data downloads, cleaning, flow, EC, and temperature QA. Visited Marshall Road Reservoir weather station for data downloads.



**DO-57 Ramona Lake**

View of weir structure. Water is rushing under partially closed gate and hitting the weirboards causing a lot of turbulence.



**DO-130 Marshall Road Res Entrance**

Justin Graham and Student Intern downloading data from weather station.



**DO-60 Moffit 1 South**

One of the dangers encountered during fieldwork.



**DO-62 Mallard Slough**

Staff gauge at Mallard Slough in the wetlands.



June 07, 2007

### **Core Sampling Event**

Sampling for core sites. The gate to DO-25 Miller Lake was locked and not accessible. The site was not sampled.



**DO-04 SJR at Mossdale**  
Chelsea Spier collecting a sample.



**DO-95 Ramona Lake Inlet**  
Jeremy Hanlon picking up an extended deploy sonde. Jeremy had to use the small boat because the water level was too high to safely wade out.



**DO-95 Ramona Lake Inlet**  
Jeremy Hanlon in the small boat retrieving the sonde.



**DO-07 SJR at Patterson**  
Chelsea Spier bucket sampling off of the pump platform.

June 12, 2007

**Extended Deployment Sampling Event**

Sampling for extended deployment. Deployed sondes in the San Joaquin River and tributaries. Sondes deployed at DO-19 Salt Slough at Lander, DO-44 SLD End, DO-10 SJR at Lander, DO-08 SJR at Crows Landing, DO-07 SJR at Patterson, and DO-05 SJR at Vernalis.



**DO-19 Salt Slough at Lander**

The sonde and housing were deployed next to the EC sensor pipe and attached with a length of cable and padlock.



**DO-10 SJR at Lander**

Picture of the sonde housing attached to a fence post secured in the sediment.



**DO-08 SJR at Crows Landing**

The sonde was deployed off of the dock at the Turlock Sportsman's Club.



**DO-07 SJR at Patterson**

Justin Graham etches the side of the housing used to protect the sonde.

June 14, 2007

### **SLD Study Sampling Event**

Sampling for SLD study sites. Sampled the check stations along the San Luis Drain.



#### **DO-44 SLD End**

EERP sample van with coolers to keep samples on ice until they can be delivered to the lab.



**DO-116 Check 4**  
Chelsea Spier and  
Student Intern  
collecting a sam-  
ple.



#### **Sediment Sampling**

Sharon Borglin and Will Stringfellow col-  
lecting a sediment sample from the SLD.



#### **Sediment Sample**

Picture of the sediment collected from the  
bottom of the drain.



June 19, 2007

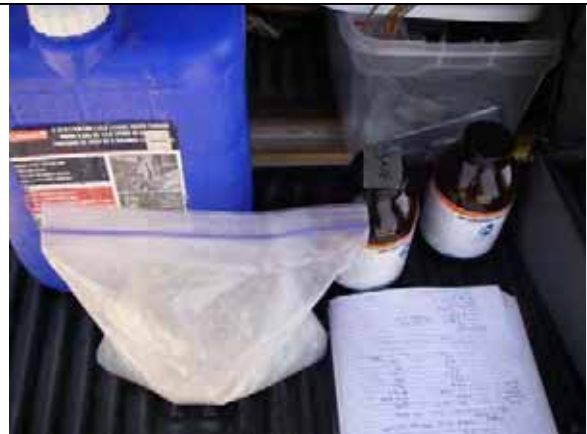
### **Westside Station Maintenance**

Performed maintenance on Westside stations. Marshall Road Reservoir, DO-38 Marshall Drain, DO-64 Moran Drain, DO-65 Spanish Grant Drain, DO-57 Ramona Lake, DO-36 Del Puerto Creek, DO-35 Westley Wasteway, DO-34 Ingram Creek, DO-33 Hospital Creek and DO-31 New Jerusalem Drain were visited for data downloads, cleaning, flow, EC, and temperature QA. Extended deploy sondes at Ramona Lake were retrieved.



### **Three Drain Site**

Peacocks are frequently seen at the Three Drain site.



### **DO-35 Westley Wasteway**

Desiccant is used in the stations to protect the electrical equipment from the moisture.



### **DO-36 Del Puerto Creek**

Justin Graham returning from a flow rating.



### **DO-34 Ingram Creek**

Justin Graham taking a staff gauge and weir stick reading at Ingram Creek.

June 21, 2007

### **Core Sampling Event**

Sampling for core sites. The extended deploy sonde at DO-05 SJR at Vernalis was retrieved.



**DO-12 Stanislaus River at Caswell**  
Chelsea Spier and Student Intern collecting a water sample.



**DO-30 TID Lat 6 and 7**  
A wasp nest was discovered in dried out melon after being stepped on. Wasps are often found around sampling sites and flow sheds, especially in the summer.



**DO-36 Del Puerto Creek**  
Chelsea Spier putting equipment into EERP van after collecting a sample.



**DO-95 Ramona Lake Inlet**  
Student Intern collecting a sample at the inlet to Ramona Lake.

June 26, 2007

**Extended Deployment Sampling Event**

Sampling for extended deployment. Deployed sondes in the San Joaquin River and tributaries. Sondes deployed at DO-19 Salt Slough at Lander, DO-18 Mud Slough near Gustine, DO-10 SJR at Lander, DO-08 SJR at Crows Landing, and DO-07 SJR at Patterson.



**DO-18 Mud Slough near Gustine**

Justin Graham calibrating Depth and DO in the field before the sondes are deployed.



**DO-44 SLD End**

Justin Graham collecting a sample.



**DO-10 SJR at Lander**

Justin Graham exchanging sondes. This site requires wading out to deploy the sonde.



**DO-05 SJR at Vernalis**

Student Intern collecting a sample. The monitoring station at this site has a pump to collect the sample water.



June 28, 2007

**Intermittent Sampling Event**

Sampling for Intermittent sites.



**DO-09 SJR at Fremont Ford**

Picture of sample site at Fremont Ford looking downstream.



**DO-67 Newman Wasteway at Brazo Rd**

Photo of Newman Wasteway.



**DO-39 Salado Creek**

Student Intern collecting sample with a bucket.



**DO-23 MID Lat 5 to the Tuolumne**

After the samples are collected they are stored in the coolers with ice until they can be delivered to the lab at UOP.

July 05, 2007

**Core Sampling Event**

Sampling for core sites.



**DO-10 SJR at Lander**

Student Intern collecting a water sample.



**DO-14 Tuolumne River at Shiloh**

Sharon Borglin and Chelsea Spier using the bucket method to collect a sample. Water is evenly distributed to all of the bottles.



**DO-29 Harding Drain**

Rental van parked on the bridge over the sample site.



**DO-07 SJR at Vernalis**

Chelsea Spier and Sharon Borglin preparing to collect a water sample from the pump platform.

July 10, 2007

**Extended Deployment Sampling Event and Westside Station Maintenance**

Sampling for extended deployment and Westside maintenance. Deployed sondes in the San Joaquin River and tributaries. Marshall Road Reservoir, DO-38 Marshall Drain, DO-64 Moran Drain, DO-65 Spanish Grant Drain, DO-57 Ramona Lake, DO-36 Del Puerto Creek, DO-35 Westley Wasteway, DO-34 Ingram Creek, DO-33 Hospital Creek and DO-31 New Jerusalem Drain were visited for data downloads, cleaning, flow, EC, and temperature QA.



**DO-08 SJR at Crows Landing**

Jeremy Hanlon opening the gate at the Turlock Sportsman's Club.



**DO-10 SJR at Lander**

Jeremy Hanlon exchanging sondes.



**DO-35 Westley Wasteway**

Justin Graham and Jeremy Hanlon replacing the cable that holds the EC probe in place.



**DO-06 SJR at Maze**

Jeremy Hanlon and Chelsea Spier preparing to leave.



July 12, 2007

**Core Sampling Event**

Sampling for core sites. Sondes were deployed at DO-18 Mud Slough near Gustine and DO-05 SJR at Vernalis.



**DO-04 SJR at Mossdale**

Sample site at San Joaquin River at Mossdale.



**DO-06 SJR at Maze**

Sample site at San Joaquin River at Maze.



**DO-21 Orestimba Creek**

Photo looking downstream at Orestimba Creek.



**DO-05 SJR at Vernalis**

Extended deploy sonde hanging off of the platform at Vernalis.

July 13, 2007

**San Joaquin River National Wildlife Refuge Field Recon**

Field Recon of the San Joaquin River National Wildlife Refuge. Met with the refuge manager, Eric Hopson (US Fish and Wildlife Service), to locate potential sample locations.



**SJR National Wildlife Refuge**

Photo of dense riparian vegetation within the refuge.



**SJR National Wildlife Refuge**

Eric Hopson and Will Stringfellow looking at a beaver dam in the refuge.



**SJR National Wildlife Refuge**

Photo of beaver activity within the refuge.



July 17, 2007

### **SLD Shutoff Sampling Event**

Sampling for SLD shutoff sites. The SLD was shutoff for a short period of time. Samples were collected twice a week for four weeks to see the influence the drain shutoff had.



### **DO-05 SJR at Vernalis**

(Top) Photo of sample site. (Right) Student Intern collecting a sample.



### **DO-10 SJR at Lander**

Student Intern collecting a sample. The site is next to a busy highway so safety vests and cones are used.



### **DO-29 TID Harding Drain**

A pipe from the nearby field is discharging water into Harding Drain. Note the abrupt change in turbidity of the sample water.



July 19, 2007

### **SLD Shutoff Sampling Event**

Sampling for SLD shutoff sites. The SLD was shutoff for a short period of time. Samples were collected twice a week for four weeks to see the influence the drain shutoff had. The sonde at DO-10 SJR at Lander needed to be switched out with another sonde. The lock fell into the water while switching sondes and the crew had to run to the store to purchase a new one.



**DO-12 Stanislaus River at Caswell**  
Student Intern using the sample bottle holder and pole to collect a sample.



**DO-19 Salt Slough at Lander**  
Student Intern collecting a sample from Salt Slough.



**DO-30 TID Lat 6 and 7**  
Student Intern filling out sample check sheet before leaving sample site.



**DO-28 TID Westport Drain**  
Sample location for TID Westport Drain.

July 24, 2007

### **SLD Shutoff Sampling Event and Extended Deployment**

Sampling for SLD shutoff sites. The SLD was shutoff for a short period of time. Samples were collected twice a week for four weeks to see the influence the drain shutoff had. Sondes were switched out at DO-18 Mud Slough, DO-19 Salt Slough at Lander, DO-10 SJR at Lander, DO-08 SJR at Crows, DO-06 SJR at Maze, DO-05 SJR at Vernalis, and DO-07 SJR at Patterson.



#### **DO-04 SJR at Mossdale**

Remie Burks calibrating the depth and DO on the extended deployment sondes before they go out into the river.



#### **DO-18 Mud Slough near Gustine**

Photo of extended deploy sonde attached to the bridge with a padlock and cable.



#### **DO-44 SLD End**

Photo showing no flow out of San Luis Drain.



#### **DO-06 SJR at Maze**

Sonde collecting data off of pump platform. Bottles are set up for bucket sampling.

July 26, 2007

**SLD Shutoff Sampling Event**

Sampling for SLD shutoff sites. The SLD was shutoff for a short period of time. Samples were collected twice a week for four weeks to see the influence the drain shutoff had.



**DO-18 Mud Slough near Gustine**

Student Intern holding up an empty sample bottle.



**DO-12 Stanislaus River at Caswell**

Photo shows alternative sample location if campsite at normal sample location is occupied. Alternative sample location is just upstream of normal site.



**DO-16 Merced River at River Road**

Sample site from the old bridge over the Merced River. Notice how clear the water is.



**DO-08 SJR at Crows Landing**

Photo of another groups sampling vehicle at the Turlock Sportsman's Club.



July 27, 2007

### **BMP and San Luis Drain Field Work**

Jeremy Hanlon met with Mat Rogers to collect sediment and plants from Ramona Lake for Mat Rogers' microcosm experiment. Jeremy Hanlon went to the San Luis Drain to check on the level of water in the drain.



#### **DO-57 Ramona Lake**

Mat Rogers packing up vegetation and sediment samples from Ramona Lake.



#### **San Luis Drain**

Chick found on side of access road along drain.



#### **DO-44 SLD End**

Photo of water flowing out of end of drain.



#### **DO-119 SLD Check 1**

Water leaking out from under the weir boards at Check 1 just upstream of DO-44 SLD End.

July 31, 2007

**SLD Shutoff Sampling Event**

Sampling for SLD shutoff sites. The SLD was shutoff for a short period of time. Samples were collected twice a week for four weeks to see the influence the drain shutoff had.



**DO-14 Tuolumne River at Shiloh**

Photo of a Carp swimming in the Tuolumne River.



**DO-44 SLD End**

Water flowing over the weir boards.



**DO-16 Merced River at River Road**

Remie Burks using the bucket method to sampling the Merced River.



**DO-29 TID Harding Drain**

Sample location at Harding Drain.

August 02, 2007

**SLD Shutoff Sampling Event**

Sampling for SLD shutoff sites. The SLD was shutoff for a short period of time. Samples were collected twice a week for four weeks to see the influence the drain shutoff had.



**DO-12 Stanislaus River at Caswell**  
Student Intern collecting a sample with the sampling pole.



**DO-34 Ingram Creek**  
EERP Van parked next to Ingram Creek flow station.



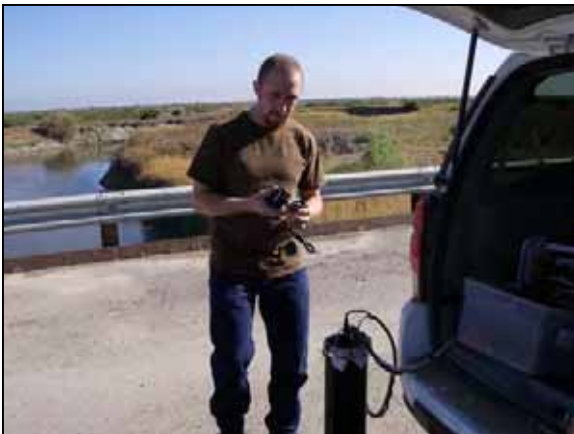
**DO-30 TID Lat 6 and 6**  
Student Intern collects a sample near the trash rack at TID Lat 6 and 7.



August 07, 2007

### **SLD Shutoff Sampling Event and Extended Deployment**

Sampling for SLD shutoff sites. The SLD was shutoff for a short period of time. Samples were collected twice a week for four weeks to see the influence the drain shutoff had. Sondes were switched out at DO-18 Mud Slough, DO-19 Salt Slough at Lander, DO-10 SJR at Lander, DO-08 SJR at Crows, DO-06 SJR at Maze, DO-05 SJR at Vernalis, and DO-07 SJR at Patterson.



#### **DO-18 Mud Slough near Gustine**

Justin Graham about to take a LUX reading while waiting for the sonde to calibrate.



#### **DO-19 Salt Slough at Lander**

Justin Graham loosening the bolt holding the extended deploy sonde into its protective housing.



#### **Sampling Gear**

Photos of gear used to sample each site. The photo on the left shows the sample bottle holders, sampling pole, and the handheld for the sonde. The photo on the right shows the sonde, velocity meter and velocity pole, notebook, and safety vest.



August 09, 2007

### **SLD Shutoff Sampling Event**

Sampling for SLD shutoff sites. The SLD was shutoff for a short period of time. Samples were collected twice a week for four weeks to see the influence the drain shutoff had.



#### **DO-12 Stanislaus River at Caswell**

Cattle use the shore opposite from the sample site.



#### **DO-06 SJR at Maze**

Picture of debris building up in front of pump platform at DO-06 SJR at Maze.



#### **DO-07 SJR at Patterson**

Water flowing out of pipe. Water input is downstream of sample location.



#### **DO-29 TID Harding Drain**

Harding Drain backed up over weir. Water sample is being collected with a bucket.



August 14, 2007

### **Westside Station Maintenance**

Performed maintenance on Westside stations. DO-38 Marshall Drain, DO-64 Moran Drain, DO-65 Spanish Grant Drain, DO-57 Ramona Lake, DO-36 Del Puerto Creek, DO-35 Westley Wasteway, DO-34 Ingram Creek, DO-33 Hospital Creek and DO-31 New Jerusalem Drain were visited for data downloads, cleaning, flow, EC, and temperature QA.



#### **DO-65 Spanish Grant Drain**

Jeremy Hanlon unlocking the grate covering the manhole.



#### **DO-35 Westley Wasteway**

The weir boards were pulled to try and clear some of the sediment built up around the sensors.



#### **DO-34 Ingram Creek**

Chelsea Spier recording data from the QA EC probe.



#### **DO-31 New Jerusalem Drain**

Jeremy Hanlon cleaning the EC probe.



August 16, 2007

**Core Sampling Event and SLNWR Field Work**

Sampling for core sites. Jeremy Hanlon visited the Student Interns in the San Luis National Wildlife Refuge. The Students completed vegetation surveys within the refuge.



**San Luis National Wildlife Refuge**

Photos of Student Interns working in the Refuge. The Students were responsible for performing vegetation surveys within the refuge.



**DO-25 Miller Lake**

Miller Lake sample location.



**DO-20 Los Banos Creek**

Foot bridge over Los Banos Creek. The EC probe and doppler flow meter are mounted to the bridge.

August 21, 2007

### **Extended Deployment Sampling Event**

Sampling for extended deployment. Deployed sondes in the San Joaquin River and tributaries. Sondes deployed at DO-19 Salt Slough at Lander, DO-18 Mud Slough near Gustine, DO-10 SJR at Lander, DO-08 SJR at Crows Landing, DO-06 SJR at Maze, and DO-07 SJR at Patterson.



#### **DO-67 Newman Wasteway at Brazo**

There was a pulse of water at Newman Wasteway designed to improve water quality conditions. The water level was higher than normal within the wasteway.



#### **DO-10 SJR at Lander**

Justin Graham exchanging sondes.



#### **DO-18 Mud Slough near Gustine**

Sonde housing after being in the water for a few weeks.



#### **DO-05 SJR at Vernalis**

Justin Graham lowering the sonde to take water quality measurements.



August 23, 2007

**Intermittent Sampling Event**  
Sampling for Intermittent sites.



**DO-47 Delta Mendota Canal at Hwy 140**  
Student Intern collecting a water sample from the DMC.



**DO-86 Ramona Drain at Apple**  
Sample site at the start of Ramona Drain.

**DO-135 MID  
Main Drain Spill**  
Water flowing over weir structure near the entrance to Miller Lake.



**DO-25 Miller Lake**  
River Otters at the sample site at Miller Lake.



August 28, 2007

**Wetland and BMP Sampling Event**

Sampling for wetland and BMP sites. Crew sampled the permanent wetland and sites along Ramona and Paradise drains.



**DO-82 Marsh 3 Inlet**

Sample site for the permanent wetland Marsh 3 inlet.



**DO-83 Marsh 3 Outlet**

Photo of the outlet for Marsh 3.



**DO-86 Ramona Drain at Apple**

Student Intern collecting the sample and duplicate sample at Ramona Drain.



**DO-94 Paradise at Almond**

Student Intern collecting sample. A pump was taking water out of the drain to irrigate a nearby field just downstream of site.

August 30, 2007

### **Core Sampling Event**

Sampling for core sites. The permanent wetland and BMP sites were also collected on this trip.



**DO-12 Stanislaus River at Caswell**  
Campsite adjacent to the sample site in Caswell Park.



**DO-82 Marsh 3 Inlet**  
Owl on top of power pole near Marsh 3 Inlet.



**DO-08 SJR at Crows Landing**  
Jeremy Hanlon collecting a sample at the Turlock Sportsman's Club.



**DO-94 Paradise at Almond**  
Chelsea Spier gathering data from the sonde.

September 04, 2007

**Extended Deployment Sampling Event**

Sampling for extended deployment. Deployed sondes in the San Joaquin River and tributaries. Sondes deployed at DO-19 Salt Slough at Lander, DO-18 Mud Slough near Gustine, DO-10 SJR at Lander, DO-08 SJR at Crows Landing, DO-06 SJR at Maze, and DO-07 SJR at Patterson.



**DO-19 Salt Slough at Lander**

Justin Graham removing the sediment from the sonde housing before exchanging the sonde with a new one.



**DO-18 Mud Slough near Gustine**

Jeremy Hanlon exchanging the extended deploy sonde at Mud Slough.



**DO-07 SJR at Patterson**

Jeremy Hanlon bucket sampling on the pump platform.



**DO-06 SJR at Maze**

Photo of the San Joaquin River at Maze from the pump platform.



September 06, 2007

### Intermittent Sampling Event

Sampling for Intermittent sites. Picked up and deployed sondes at DO-135 MID Main Drain Spill and DO-25 Main Drain Miller Lake. There was no flow at DO-92 Paradise at Apricot, no sample was collected.



**DO-67 Newman Wasteway at Brazo**  
Sonde collecting data from Newman Waste-way.



**DO-130 Marshal Road Res Inlet**  
Picture of the weather station at Marshall Road Reservoir. The station collects wind, air temperature and barometric pressure data.



**DO-92 Paradise at Apricot**  
There was no flow at this site. No sample was collected.



### DO-135 MID Main Drain Spill

Screen was wrapped around the extended deploy sonde to prevent debris entering the guard housing. Debris in the housing gives falsely high turbidity and chlorophyll readings.

September 11, 2007

### Westside Station Maintenance

Performed maintenance on Westside stations. Marshall Road Reservoir, DO-38 Marshall Drain, DO-64 Moran Drain, DO-65 Spanish Grant Drain, DO-57 Ramona Lake, DO-36 Del Puerto Creek, DO-35 Westley Wasteway, DO-34 Ingram Creek, DO-33 Hospital Creek and DO-31 New Jerusalem Drain were visited for data downloads, cleaning, flow, EC, and temperature QA.



### Marshall Road Reservoir

Justin Graham opening the gate.



### DO-33 Hospital Creek

Chelsea Spier using the weir stick to measure the flow of Hospital Creek.



### DO-36 Del Puerto Creek

Chelsea Spier performing a stream rating while Justin Graham records the data.



### DO-57 Ramona Lake

Crew preparing to leave the site.

September 13, 2007

### **Core Sampling Event**

Sampling for core sites. The BMP sites were also collected on this trip. DO-21 Orestimba Creek had no flow and was not sampled.



### **DO-05 SJR at Vernalis**

Sonde handheld setup to record water quality measurements.



### **DO-06 SJR at Maze**

Great Blue Heron flying over the newly plowed field near the San Joaquin River at Maze.



### **Corn Harvesting**

A corn harvester grinding the corn and loading it into a truck for delivery near DO-28 Westport Drain.



### **DO-29 TID Harding Drain**

Student Intern using a funnel and bucket to collect a water sample.



September 18, 2007

### Extended Deployment Sampling Event

Sampling for extended deployment. Deployed sondes in the San Joaquin River and tributaries. Sondes deployed at DO-19 Salt Slough at Lander, DO-18 Mud Slough near Gustine, DO-10 SJR at Lander, DO-08 SJR at Crows Landing, DO-06 SJR at Maze, and DO-07 SJR at Patterson.



#### DO-18 Mud Slough near Gustine

Photo of the sonde housing covered in algae. Justin Graham calibrating the extended deployment sondes for depth and DO.



#### DO-135 MID Main Drain Spill

Sampling sonde recording data next to the extended deploy sonde.



#### DO-25 Miller Lake

Sonde and housing deployed at Miller Lake. The cable is wrapped around the post preventing the sonde from going over the weir.

September 20, 2007

### **Wetland Sampling Event**

Sampling for wetland sites. A flow rating was performed at DO-53 Salt Slough at Wolfsen. HOBO pressure loggers were installed in two wetlands to measure changes in water depth.



#### **DO-53 Salt Slough at Wolfsen**

Jeremy Hanlon performing a stream rating.



#### **DO-61 Deadmans Slough**

Beaver activity clogging the weir structure. This site lacks a good flow stage relationship because of all the debris blocking the weir structure.



#### **DO-81 Marsh 1 Outlet**

Jeremy Hanlon installing a HOBOT logger at the outlet of the temporary wetland.



#### **DO-63 Inlet C Canal**

Fields next to Inlet C Canal were being sprayed while crew was visiting the site.

September 27, 2007

### **Core Sampling Event**

Sampling for core sites. The BMP sites were also collected on this trip. DO-21 Orestimba Creek had no flow and was not sampled.



### **DO-44 San Luis Drain End**

Rental van used for sampling. Magnets with the EERP and UOP logo are affixed to the sides of the van.



### **DO-04 SJR at Mossdale**

Chelsea Spier collecting a sample.



### **DO-88 Ramona Drain at Apricot**

This site is often covered with duckweed and waterprimrose.



### **DO-14 Tuolumne River at Shiloh**

Remie Burks having fun with the camera.



October 02, 2007

### **Extended Deployment Sampling Event**

Sampling for extended deployment. Picked up sondes in the San Joaquin River and tributaries. Sondes picked up at DO-19 Salt Slough at Lander, DO-18 Mud Slough near Gustine, DO-10 SJR at Lander, DO-08 SJR at Crows Landing, DO-06 SJR at Maze, and DO-07 SJR at Patterson.



#### **DO-18 Mud Slough near Gustine**

The bolt was missing from the housing. A stick was all that kept the sonde and housing together.



#### **DO-10 SJR at Lander**

A fish was found in the sonde housing when the extended deploy sonde was retrieved.



#### **DO-07 SJR at Patterson**

Photo of pump platform at the sample site. The extended deploy sonde is hung from the end of the pump platform into the river.

October 04, 2007

### **Wetland Sampling Event**

Sampling for wetland sites. No sample was taken at DO-60 Moffit 1 South because there was no water.



### **Marsh 1 Temporary Wetland**

Picture of Marsh 1. This wetland is only filled part of the year.



### **DO-122 Marsh 1 West**

Special housing chamber for the sonde prevents the vegetation from interfering with the sensors.



### **DO-81 Marsh 1 Outlet**

Jeremy Hanlon downloading the HOBOT logger at the outlet of the temporary wetland.



### **DO-82 Marsh 3 Inlet**

Jeremy Hanlon reading the level of the water from the staff gauge to compare to the HOBOT logger.

October 09, 2007

**Westside Station Maintenance**

Performed maintenance on Westside stations. DO-38 Marshall Drain, DO-64 Moran Drain, DO-65 Spanish Grant Drain, DO-57 Ramona Lake, DO-36 Del Puerto Creek, DO-35 Westley Wasteway, DO-34 Ingram Creek, DO-33 Hospital Creek and DO-31 New Jerusalem Drain were visited for data downloads, cleaning, flow, EC, and temperature QA.



**DO-57 Ramona Lake**

Picture of extremely low water level at Ramona Lake.

**DO-31 New Jerusalem Drain**

Flow station at top of levee.





October 11, 2007

**Core Sampling Event**

Sampling for core sites. DO-21 Orestimba Creek had no flow and was not sampled.



**DO-20 Los Banos Creek**

Sampling location at Los Banos Creek.



**DO-06 SJR at Maze**

Remie Burks putting samples onto ice after being collected.



**DO-06 SJR at Maze**

View of the pump platform. Samples are collected in front of the trash rack.



**DO-21 Orestimba Creek**

There was no flow through Orestimba Creek. The site was not sampled.

October 25, 2007

### Core Sampling Event

Sampling for core sites. DO-21 Orestimba Creek had no flow and was not sampled.



**DO-20 Los Banos Creek**  
Photo depicting flooded wetlands near Los Banos Creek



**DO-28 TID Westport Drain**  
Sample site for Westport Drain.



**DO-34 Ingram Creek**  
This site is supplied with both tile drainage and field runoff causing the turbidity to fluctuate throughout the year.



**DO-34 Ingram Creek**  
Weir structure at Ingram Creek.

November 01, 2007

### **Westside Station Maintenance**

Performed maintenance on Westside stations. Marshall Road Reservoir, DO-38 Marshall Drain, DO-64 Moran Drain, DO-65 Spanish Grant Drain, DO-57 Ramona Lake, DO-36 Del Puerto Creek, DO-35 Westley Wasteway, DO-34 Ingram Creek, DO-33 Hospital Creek and DO-31 New Jerusalem Drain were visited for data downloads, cleaning, flow, EC, and temperature QA.



### **DO-57 Ramona Lake**

Water level was still extremely low at Ramona Lake.

### **DO-34 Ingram Creek**

Jeremy Hanlon cleaning the EC probe.





November 08, 2007

**Core Sampling Event**

Sampling for core sites.



**DO-12 Stanislaus River at Caswell**  
Justin Graham collecting a water sample.



**DO-19 Salt Slough at Lander**  
Boat going past sample site. Crew waited for awhile after the boat passed to collect the sample.



**DO-25 Miller Lake**  
Justin Graham downloading data from the bubbler unit at Miller Lake.



**DO-29 TID Harding Drain**  
Sample site at Harding Drain.

November 15, 2007

### **Field Reconnaissance by Boat**

Used the boat to find the a continuous monitoring station recently upgraded along the San Joaquin River. The station was located and confirmed by Gary Litton and Mark Brunell of University of the Pacific. The crew noticed a dramatic drop in performance of the boat on the way back, but couldn't determine the cause on the water.



### **Continuous Monitoring Station**

Picture of monitoring station recently upgraded.



### **Gary Litton's Sampling Boat**

The crew met Gary Litton (UOP) and Mark Brunell (UOP). They confirmed the location of the monitoring station.



### **Boat Engine Problems**

Jeremy Hanlon and Justin Graham examining the engine to determine cause of throttle issues.



### **Boat Jet Drive**

Jeremy Hanlon disassembled the jet drive. Small twigs were caught between the blades and this caused the lack of performance.

November 20, 2007

**Technical Working Group Meeting**

Attended the TWG meeting for a demonstration of the new oxygenation facility in the Deep Water Ship Channel. The facility pumps water through a deep pipe that adds oxygen and then puts the oxygen enriched water back into the ship channel.



**Oxygenation Facility**

Various representatives from different agencies listen to presentation on how the facility works.



**Oxygenation Facility**

Picture of the oxygen storage tank.



**Oxygenation Facility**

Photo of control panel for the pumps.



**Oxygenation Facility**

Presentation on how the facility will increase the oxygen in the Deep Water Ship Channel.



December 06, 2007

### **Core Sampling Event**

Sampling for core sites. It started to rain partway through the day and DO-30 TID Lat 6 and 7, DO-28 TID Westport Drain, and DO-36 Del Puerto Creek were not sampled because the roads were too wet to drive down. DO-135 MID Main Drain Spill did not have any flow and was not sampled.



#### **DO-12 Stanislaus River at Caswell**

Jeremy Hanlon in his rain jacket collecting a water sample.



#### **University of the Pacific**

Sampling crews preparing to leave.



#### **DO-14 Tuolumne River at Shiloh**

Airboat going down river. Boat was very loud and stirred up the turbidity of sample site. Crew had already finished sampling.



#### **DO-08 SJR at Crows Landing**

Chelsea Spier collects sample from the dock at Turlock Sportsman's Club.

December 13, 2007

**San Joaquin River National Wildlife Refuge Field Recon**

Field Recon of the San Joaquin River National Wildlife Refuge. The crew attempted to survey a stretch of Hospital Creek but the mud was too deep and sticky.



**SJR National Wildlife Refuge**

Jeremy Hanlon and Remie Burks discussing surveying possibilities.



**SJR National Wildlife Refuge**

Jeremy Hanlon standing next to a beaver dam near the outflow of the refuge.



**SJR National Wildlife Refuge**

Jeremy Hanlon reading off GPS coordinates to be recorded.